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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/404,940	09/23/1999	KENTARO TOYAMA	1018.034US1	8935

27662 7590 03/12/2003

LYON & HARR, LLP  
300 ESPLANADE DRIVE, SUITE 800  
OXNARD, CA 93036

EXAMINER

BOOKER, KELVIN E

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/404,940	TOYAMA, KENTARO
Examiner	Art Unit	
Kelvin E Booker	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 29 November 2002.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) 13-18 and 25-29 is/are allowed.

6) Claim(s) 1,2,6-12 and 19-24 is/are rejected.

7) Claim(s) 3-5 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: *Detailed Office Action* .

## **DETAILED ACTION**

### ***Response to Amendment***

1. In Amendment "A", filed November 29, 2002 (see paper no. 11), claims one and 19 were amended, and the Examiner has withdrawn the 35 USC § 112 rejections addressed in the initial Office Action. Claims 1-29 are presented for further consideration.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 2, 6-12 and 19-24** are rejected under 35 U.S.C. 102(b) as being anticipated by Jagielski, "An Application of Neural networks to Emulation of Aesthetic Judgements" [hereafter Jagielski].

**As per claim 1**, Jagielski teaches of a computer-implemented method comprising:

A. inputting a training set including a plurality of images and a corresponding plurality of aesthetic scores for the images (see Abstract; and page 336, column 1: inputting images and corresponding aesthetic values); and

B. training a classifier to provide aesthetic scores based on the training set (see page 336, columns 1 and 2: training the classifier); and

C. outputting the classifier trained to provide aesthetic scores (see page 336, column 2: resulting output from classifier).

**As per claim 2**, Jagielski teaches of a method further comprising:

A. inputting an image into the classifier (see page 336, column 1: inputting images into the classifier); and

B. generating an aesthetic score for the image based on the classifier (see page 336, columns 1 and 2: training the classifier and generating a score); and

C. outputting the aesthetic score for the image (see page 336, column 2: providing an aesthetic score).

**As per claim 6**, Jagielski teaches of a method wherein training a classifier comprises training one of a Bayesian classifier, a Support Vector Machine (SVM) classifier, a neural net classifier, and a decision tree classifier (see Abstract; and page 336, column 1: employing a neural network for training purposes).

**As per claim 7**, Jagielski teaches of a method wherein training a classifier comprises utilizing feature selection to correlate at least one image feature of the images with their corresponding aesthetic scores (see page 335, column 1: using aesthetic descriptors and preferences).

**As per claim 8**, Jagielski teaches of a method wherein utilizing feature selection to correlate at least one image feature comprises utilizing feature selection to correlate at least one image feature selected from the group essentially consisting of: color presence, color distribution, geometrical quantities of segmented image parts, coefficients of image transformations, and higher-level image representations (see page 335, column 1: using aesthetic descriptors and preferences).

**As per claim 9**, Jagielski teaches of a computer-implemented method comprising:

- A. inputting an image (page 336, column 1); and
- B. generating an aesthetic score for the image by utilizing a classifier previously trained on a training set including a plurality of images and a corresponding plurality of aesthetic scores for the images (see page 336, columns 1 and 2); and
- C. outputting the image (see page 336, column 2).

**As per claim 10**, Jagielski teaches of a method wherein generating an aesthetic score comprises generating an aesthetic score based on at least one image feature of the image (see page 335, column 1).

**As per claim 11**, Jagielski teaches of a method wherein generating an aesthetic score based on at least one image feature of the image comprises generating an aesthetic score based on at least one image feature selected from the group essentially consisting of: color presence, color distribution, geometrical quantities of segmented image parts, coefficients of image transformations, and higher-level image representations (see page 335, column 1).

**As per claim 12**, Jagielski teaches of a method wherein utilizing a classifier comprises utilizing one of a Bayesian classifier, a Support Vector Machine (SVM) classifier, a neural net classifier, and a decision tree classifier (Abstract; and page 336, column 1).

**As per claim 19**, the same limitations are subjected to in claim 1, therefore the same rejections apply (see claim 1 above).

**As per claims 20-21**, the same limitations are subjected to in claims 6-7, respectively, therefore the same rejections apply (see claims 6-7 above).

**As per claims 22-23**, the same limitations are subjected to in claims 9-10, respectively, therefore the same rejections apply (see claims 9-10 above).

**As per claims 24**, the same limitations are subjected to in claims 12-16, respectively, therefore the same rejections apply (see claims 12 above).

*Allowable Subject Matter*

5. **Claims 13-18 and 25-29** are allowed.

6. **Claims 3-5** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

the cited prior art fails to explicitly teach of a computer-implemented method for training a neural network to provide aesthetic judgements of images, wherein an image and the

corresponding aesthetic value is used as inputs to train the neural net; an aesthetic score is generated and outputted by the trained neural network based upon the image and related input values; and a recommendation to improve the aesthetic score for the image is provided based upon a gradient ascent.

***Conclusion***

8. An inquiry concerning this communication or earlier communications from the examiner should be directed to Kelvin Booker whose telephone number is (703) 308-4088. The examiner can normally be reached on Monday-Friday from 7:00 AM-5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee, can be reached on (703) 305-8498. The fax number for the organization where this application or proceeding is assigned is (703) 746-7239.

An inquiry of a general nature or relating to the status of this application proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



K.E.B.



JOHN FOLLANSBEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

**Art Unit 2121**

**March 9, 2003**